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10/723,389	11/25/2003	Thomas Redden Veariel	2003B103/2	8869
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EXXONMOBIL CHEMICAL COMPANY			BODAWALA, DIMPLE N	
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			03/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/723,389	<b>Applicant(s)</b> VEARIEL ET AL.
	<b>Examiner</b> DIMPLE N. BODAWALA	<b>Art Unit</b> 1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 January 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 36-64 and 72-86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 36-64 and 72-86 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/136/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

⇒ Claims 36-64 and 72-86 are pending.

⇒ Claims 1-35 and 64-71 are cancelled.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/7/2008 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 36-64 and 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 36, 51 and 72 are vague and indefinite because it is unclear by having multiple ranges of temperature.

5. Claim 52 recites the limitation "the extrusion orifice pattern" in line 2. There is insufficient antecedent basis for this limitation in the claim, because claim 52 is depended on claim 51, wherein claim 51 cites the extrusion die assembly, but fails to cite the extrusion orifice pattern.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 36-39, 51-53, 56, 72-74, 80, and 81 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiromi et al. (JP 58-217327).

8. Hiromi ('327) discloses the extrusion apparatus which comprises the die with upstream face, down stream face, a passage having a first opening in upstream face whereby the molten resin at bulk temperature may be received and a second opening in the downstream face whereby molten resin may be extruded; and a heater (2,4) proximate the downstream face and proximate with the passage at downstream face and capable of locally heating the molten resin to a temperature from about 280 C – 350 C (See abstract, figure 1). It further teaches that the passage is generally cylindrical and having

substantially uniform diameter from upstream face to the downstream face (See figure 1). Figure 1 teaches that the heater is concentric with the passage, wherein the passage passes through the portion of the heater, such that the portion defines the wall of the passage proximate the downstream face. It further discloses an extrusion assembly having heater (2,4) for heating the polymer to a higher temperature than the  $T_{melt}$  as indicated in the claim. The prior art further teaches that the heater (4) is disposed at the exit end of the extruder for heating a portion of the polymer exiting from the device (See figure 1).

9. Furthermore, figure 1 discloses the extrusion die assembly with an intermediate zone for conveying the molten material. It further teaches that the heater concentric with the extrusion orifice pattern, and heating means is proximate said exit opening. It further teaches that the orifice and the passage are fluidically connected, and whereby the heater is capable of locally heating the molten material passing out of the orifice to a temperature about 280 C – 350 C by passing through the passages of the heater, and means to provide the electrical energy to the heater, which inherently suggests an electrical heater as an electrical heating element proximate the down stream face and proximate with the one passage at the downstream opening, wherein the electrical heating means is capable of locally heating the molten

resin by direct contact of the resin with the electrical heating means (See figure 1) as defined in claims 73 and 80.

10. With regard to the specific temperatures recited in claims 36, 51 and 72 such relates to the intended use of the claimed apparatus structure, which does not impart patentability to the claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed the structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (*Bd. Pat. App. & Inter. 1987*). The manner in which machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152 USPQ 235,238. Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530. Purpose to which the apparatus is to be put and expression relating the apparatus contents thereof during the intended operation are not significant in determining patentability of an apparatus, *Ex Parte Thibault*, 164 USPQ 666.

11. Hiromi ('327) discloses all the claimed structural limitations, and, thus, the claims are anticipated.

12. Claims 36-38, 44, 47, 51-53, 56, 58-59, 62, 72-74, 76-78, 80-81, and 83-85 are rejected under 35 U.S.C. 102(b) as being anticipate by Courval et al (5,204,045).

13. Courval et al teach a die plate having (Fig 31 #25) (a) an upstream face; (b) a downstream face; (c) at least one passage having a first opening in said upstream face whereby molten resin may be received and a second opening in said downstream face whereby molten resin may be extruded; and (d) a heater (Fig 3, #28) proximate said downstream face and proximate with said at least one passage at said downstream opening; the at least one passage is generally cylindrical and having a substantially uniform diameter from said upstream face to said downstream face (Fig 3); the heater is concentric with said at least one passage (Fig 3); the die plate is a monolithic die plate (Fig 3); die plate comprises a first plate having said upstream face and a second plate having said downstream face and said heater, said first and second plates fluidically connected by said at least one passage (the broadness of the claims shows that Courval et al reads on this, with #14 being the first plate and #25 being the second plate); the at least one passage passes through a portion of said heater, such that said portion defines the wall of said passage proximate said downstream face (an alternative embodiment of Courval et al reads on this, col. 8, lines 9-11); the die plate comprises a material selected from brass,

and stainless steel (col. 2, lines 40-55); an extrusion die assembly having a die plate having at least one passage including an initial, upstream zone comprised of an opening for receiving a polymer melt having a bulk temperature, an intermediate zone for conveying said polymer melt, and a final, downstream zone terminating said extrusion die assembly at an exit opening whereby said polymer melt exits said extrusion die assembly, further comprising a heating means for said downstream zone whereby at least a portion of said polymer melt may be locally heated to a temperature greater than T (Fig 3); the heating means comprises a heater concentric with the extrusion orifice pattern (Fig 3); the heating means is proximate said exit opening; the passage is generally cylindrical and having a substantially uniform diameter from said opening for receiving a polymer melt to said exit opening (Fig 3); the die plate is a monolithic die plate (Fig 1) the die plate comprises a first plate having an upstream face and comprising said upstream zone and a second plate having a downstream face and said heater, said first and second plates fluidically connected by said at least one passage (see discussion above); the die plate comprises a material selected from brass, and stainless steel (col. 2, lines 40-55); the second plate is a retrofit part (See Fig 3). Courval ('045) discloses the heater near by the die plate. It further discloses the temperature range of the molten material, which is about 30 C

to 145 C. It further teaches that the temperature range of the molten polymer is depending on the polymer shape as a result of deformation force upon it (See coi.5 lines 9-43, and example 2). It further discloses a heater comprises a band heater, which inherently suggests the band heater as an electrical heating means.

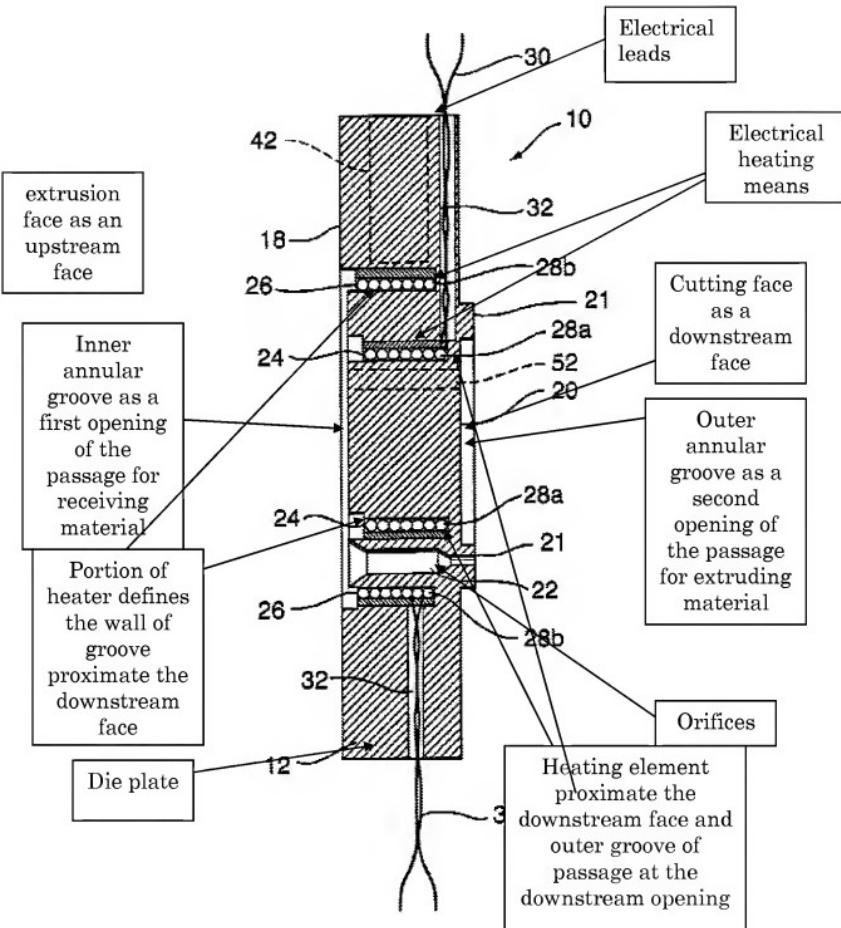
14. With regard to the specific temperatures recited in claims 36, 51 and 72 such relates to the intended use of the claimed apparatus structure, which does not impart patentability to the claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed the structural limitations, *Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)*. The manner in which machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey, 152 USPQ 235,238*. Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder, 168 USPQ 530*. Purpose to which the apparatus is to be put and expression relating the apparatus contents thereof during the intended operation are not significant in determining patentability of an apparatus, *Ex Parte Thibault, 164 USPQ 666*.

15. Therefore, Courval ('045) discloses all claimed structural limitations as discussed above, and, thus, the claims are anticipated.

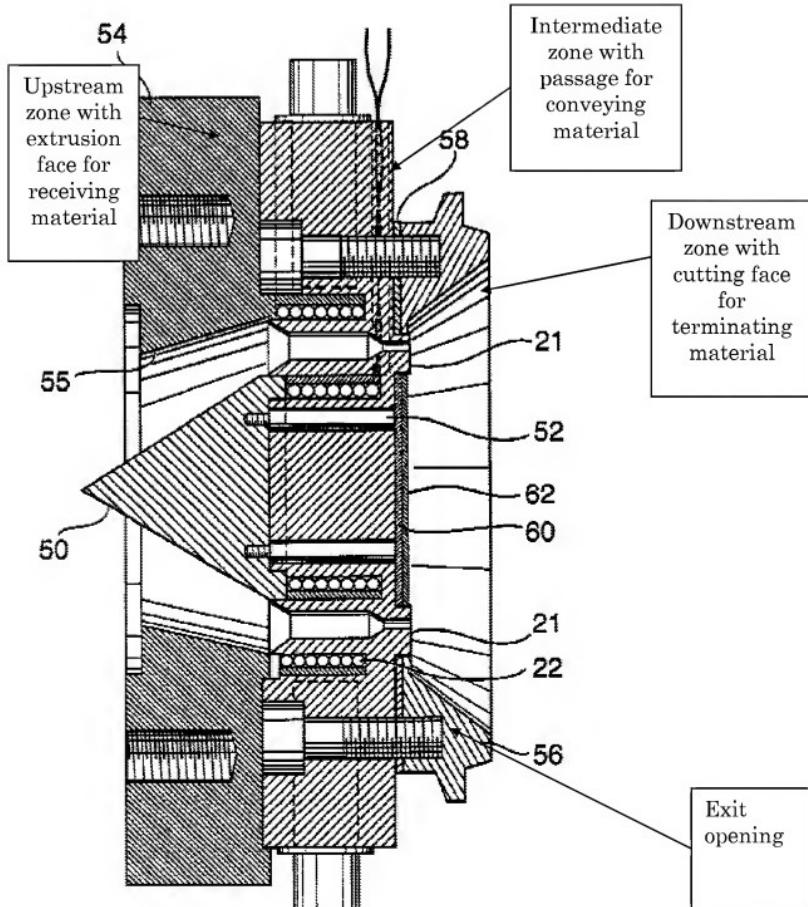
16. Claims 73-75, 78, 80-82 and 85 are rejected under 35 U.S.C. 102(b) as being anticipated by Ready et al. (U S Patent No. 6,474,969).

17. Ready et al. ('969) discloses an extrusion die assembly (10) comprising a die plate (12) (See figure 3) for preparing pellets (See col.1 lines 11-15), wherein plate is made of steel (See col.3 lines 25-27) and having an extruder face as an upstream face (18); a cutting face as a downstream face (20); annular inner and outer groove (24,26) as at least one passage for receiving the material and second opening for extruding material in downstream face (20) direction (See figure 3); and an electrical heating element (28a,28b) proximate the downstream face and proximate with the one passage (24,26) at the downstream opening (see figure 3; col.4 lines 4-10), wherein the electrical heating element which inherently capable of locally heating the molten resin with the electrical heating elements. Figure 3 further teaches that the portion of the heaters (28a,28b) defines the wall of the passage (24,26) proximate the downstream face. It further teaches that the annular passage (24,26) is filled with a thermally conductive paste so that heat from heating element (28a,28b) may be properly conducted to orifice (22) (See col.4 lines 11-20), which inherently suggests that the insulation material

concentric with the passage and contiguous with the portion of the heating element which defines the wall of the passage, wherein the passage proximate opening of the downstream face for extruding the material.



Above figure from the prior art indicates the cross sectional views of the die plate of extrusion die assembly.



Therefore, Reddy et al. ('969) discloses all claimed structural limitations as discussed above, and, thus, the claims are anticipated.

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point

out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 36-46, 51-61, 72-77, and 80-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leffew et al. (U S Patent No. 6,409,491).

22. Leffew ('491) discloses the extrusion die assembly (14) with the die plate (4), which comprises an upstream face (11); a downstream face (12); a passage (15) having a first opening in the upstream face (11) whereby molten resin at bulk temperature may be received and a second opening in said downstream face (12) whereby molten resin may be extruded; and a heater (2) proximate said downstream face (12) and proximate with the passage (15) at the down stream opening and capable of heating the molten resin to a temperature, wherein the heater (2) is a combination of band heaters and cartridge heaters to keep the material flowing and to avoid frictional drag on the material passing through the plate and to prevent solidification prior to cutting (See col.1 lines 21-25), which can be understandable that a combination of band heaters and cartridge heaters is a part of an electrical heating elements. It further teaches that the die plate (4) is monolithic die plate. It further teaches that the die plate (4) comprises the intermediate

zone (9) for conveying the polymer melt (See figure 1). Figure 1 further teaches that the passage (15) is generally cylindrical and having a substantially uniform diameter from the upstream face (11) to down stream face (12). It further teaches that the heater (2) is concentric with the passage, wherein the passage (15) passes through the portion of the heater, such that the portion defines the wall of the passage proximate the down stream face (12). Figure 1 further teaches that the die plate (4) comprises the first plate having the upstream face (11) and a second plate having the downstream face (12) and heater (2), and also plurality of passage, wherein said first and second plate are fluidically connected by the passage (15) (See col.2 lines 18-48). It further discloses a plurality of heaters (2), wherein each heater containing a corresponding extrusion barrel within the interior, such that the corresponding extrusion barrel is heated to a predetermined temperature (See figure 1, col.4 lines 14-18), which inherently suggests that the heating means for raising a local area of the material flow to a temperature above the  $T_{melt}$  as defined in the claims of the instant application.

23. Figure 1 further teaches that the extrusion die assembly (14) having a plurality of extrusion orifices and the monolithic heater (2) in a resin shaping apparatus comprises a heater having first face to engage with the orifice, and second face opposite to the first face. It further teaches that the die plate is

associated with the combination of a band and cartridge heater, means to provide electrical energy to the heater (See col.1 lines 21-32).

24. Leffew ('491) discloses all claimed structural limitations as discussed above. He further teaches that the heater is capable of heating the polymer at a predetermined temperature, however does not provide the temperature range at which the heater is capable of being operated.

25. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Leffew ('491) by providing the heater capable of heating to the temperature range as recited in the claims I order to provide the desired heating at a wide range of temperature for melting a variety of polymers inherently having a wide range of melt temperatures.

26. With regard to the specific temperatures recited in claims 36, 51 and 72 such relates to the intended use of the claimed apparatus structure, which does not impart patentability to the claims. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed the structural limitations, *Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)*. The manner in which machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey, 152*

*USPQ 235,238.* Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder, 168*

*USPQ 530.* Purpose to which the apparatus is to be put and expression relating the apparatus contents thereof during the intended operation are not significant in determining patentability of an apparatus, *Ex Parte Thibault, 164 USPQ 666.*

27. Claims 47-50, 62-64, 78-79 and 85-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leffew et al. (U S Patent No. 6,409,491) in view of Dudley (U S Patent No. 4,123,207).

28. Leffew ('491) discloses all claimed structural limitations as discussed above, but does not disclose the die plate made of material, the insulation material, and also the deposition of insulation material.

29. In the analogous art, Dudley ('207) discloses the die plate, which is made from stainless steel, or like material (See col.3 lines 60-68). It further teaches that either low thermal conductivity material or Teflon insulates the die plate, wherein the Teflon consists the higher temperature property (See col.4 lines 20-27).

30. Claims 48-50, 63-64, 79 and 86 are recited the limitations of the process steps for depositing the insulation material either spray coating techniques or vapor deposition techniques. With regard to the claim recitations

regarding the method of forming the apparatus, such relate only to the method of producing the claimed apparatus, which does not impart patentability to the apparatus claims. The determination of the patentability is based on the product apparatus itself, *In re Brown*, 173 USPQ 685, 688, and the patentability of the product does not depend on its method of the production, *In re Pilkington*, 162 USPQ 145, 147; *In re Thrope*, 227 USPQ 964 (CAFC 1985). Therefore claims 48-50, and 63-64 are unpatentable over Leffew et al. (U S Patent No. 6,409,491) in view of Dudley (U S Patent No. 4,123,207).

31. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Leffew ('491) by providing the material of the die plate because such an alignment utilizes the steam to maintain the material being extruded in a molten state (See col.1 lines 54-61) as suggested by Dudley ('207).

***Response to Arguments***

32. Applicant's arguments filed on 12/17/2007 have been fully considered but they are not persuasive.

33. Applicant argues that the prior art, Hiromi does not disclose a die plate or extrusion assembly for preparing a solid pellet and having a heater

capable of locally heating the melt to a specific temperature range above the  $T_{melt}$ .

34. This is not found persuasive because the prior art Hiromi discloses an apparatus as an extrusion assembly with a die for molding product (See abstract). Furthermore, the prior art, Hiromi discloses an extrusion assembly having heater for heating the polymer to a temperature range (200/100 C to 350/300 C) which is above the bulk temperature of  $T_{melt}$  (See abstract). Furthermore, the prior art, Hiromi discloses an extrusion assembly having heater which is disposed at the exit end of the extruder for heating a portion of the polymer exiting from the device (See figure 1), which inherently suggest localized means for locally heating the polymer.

35. Furthermore claims of the instant application cite a die plate for manufacturing a pellet, wherein the die plate is involved as an intended use. As we know that intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530; purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666; A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed

apparatus from a prior art apparatus satisfying the claimed apparatus structural limitations, *Ex parte Masham*, 2 USPQ2d 1647. Therefore, the prior art Hiromi discloses an apparatus with all structural limitations as defined in the claims of the instant application.

36. Applicant further argues that the prior art Leffew does not disclose the apparatus element of a heater capable of and positioned so as to heat only locally a portion of the melted polymer to the recited range above the T<sub>melt</sub> or cup temperature of the polymer mass, while the balance of the mass remains at T<sub>melt</sub>. Furthermore, Leffew does not provide a heating means for raising a local area of the polymer flow to a temperature above T<sub>melt</sub>. There is no indication in Leffew whether the heaters could heat the polymer beyond the T<sub>melt</sub>.

37. This is not found persuasive because the prior art, Leffew discloses plurality of heater (2), wherein each heater containing a corresponding extrusion barrel within the interior, such that the corresponding extrusion barrel is heated to a predetermined temperature (See figure 1, col.4 lines 14-18), which inherently suggests that the heating means for raising a local area of the material flow to a temperature above the T<sub>melt</sub> as defined in the claims of the instant application.

***Conclusion***

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See PTOL-892 for further references related to an extrusion assembly with a die plate and heating means).

39. Vermeerbergen (U S Patent No. 3,819,777) discloses an extrusion assembly with multiple die head having an electrical heaters for melting the material above the bulk temperature.

40. Courval et al. (U S Patent No. 5,204,045) discloses an extrusion die assembly for extruding polymer having band heaters (26,27), wherein the temperature of molten resin is 120 C and temperature of die is grater than 140 C (See examples 1-5).

41. Yoshida et al. (U S Patent No. 6,220,847) discloses a granulating die which die plate (2) with external surface (2a), wherein the die surface is kept at a high temperature of about 250C. It further teaches that the meting temperature of the polymer material is about 120 to 167 C, which is less than the temperature of the die surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIMPLE N. BODAWALA whose telephone number is (571)272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PHILIP C. TUCKER can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dimple N Bodawala  
Examiner  
Art Unit 1791

/D. N. B./  
Examiner, Art Unit 1791

/Philip C Tucker/  
Supervisory Patent Examiner, Art Unit 1791